

AMENDMENTS TO THE SPECIFICATION:

Please replace the title of the invention beginning on page 1, line 3 with the following rewritten version:

Quantitative Measurement Method and Quantitative Measurement Chip
for Objective Target Substance

Please replace the paragraph beginning at page 7, line 6 with the following rewritten version:

In order to resolve the aforementioned problems, a first invention of the present application a first aspect of the present invention is a quantitative measurement method which uses a structure formed with a material having a three dimensional mesh structure, and which contains a reagent which reacts with a target substance in the mesh, to perform quantitative measurements of the target substance. The method comprises a contacting step in which a test specimen containing the target substance is brought into contact with the structure; a detecting step which detects, at a contact interface between the test specimen and the reagent, a substance whose quantity increases or decreases within the structure by means of the reaction between the target substance and the reagent; and a quantitative measurement step which performs quantitative measurement of the target substance in response to the results of the detecting step; wherein the mesh structure allows at least the target substance to pass therethrough.

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Preliminary Amendment

Please replace the paragraph beginning at page 8, line 15 with the following rewritten version:

A second invention aspect of the present application invention provides a quantitative measurement method according to the first invention aspect of the present application invention, in which the mesh structure has a size which prevents a specimen which is larger than the target substance from passing therethrough.

Please replace the paragraph beginning at page 9, line 8 with the following rewritten version:

A third invention aspect of the present application invention provides a quantitative measurement method according to the first invention aspect of the present application invention, in which the test specimen is whole blood and the target substance is the blood plasma component thereof.

Please replace the paragraph beginning at page 9, line 22 with the following rewritten version:

A fourth invention aspect of the present application invention provides a quantitative measurement method according to the first invention aspect of the present application invention, in which in the detection step, the concentration of the quantitatively increasing or decreasing substance is measured at a predetermined distance from the contact interface between the test specimen and the structure, after a predetermined period of time has elapsed from the time at which the test specimen came into contact with the structure in the contacting step.

Please replace the paragraph beginning at page 9, line 29 with the following rewritten version:

The diffusion speed of the target substance into the structure will increase as the concentration of the target substance increases, so a substance whose quantity increases by means of the reaction between the target substance and the reagent will be detected at high concentrations, and a substance whose quantity decreases by means of the reaction between the target substance and the ~~test specimen~~ reagent will be detected at low concentrations. Thus, quantitative measurements of the target substance can be performed from the concentration of a substance whose quantity increases or decreases by means of the reaction between the target substance and the ~~test specimen~~ reagent, at a predetermined distance from the contact interface after a predetermined period of time has elapsed.

Please replace the paragraph beginning at page 10, line 9 with the following rewritten version:

A fifth invention aspect of the present application invention provides a quantitative measurement method according to the first invention aspect of the present application invention, in which in the detection step, the time until the predetermined concentration of a quantitatively increasing or decreasing substance is detected at a predetermined distance from the contact interface between the test specimen and the structure will be measured, based upon the time at which the test specimen first came into contact with the structure in the contacting step.

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Please replace the paragraph beginning at page 10, line 16 with the following rewritten version:

The diffusion speed of the target substance into the structure will increase as the concentration of the test substance increases, so the substance whose quantity increases or decreases by means of the reaction between the target substance and the ~~test specimen~~ reagent will be detected in a short period of time at a certain distance away from the contact interface. Thus, quantitative measurement of the target substance can be performed from the time at which the quantitatively increasing or decreasing substance is detected at a predetermined concentration at a predetermined distance from the contact interface.

Please replace the paragraph beginning at page 10, line 23 with the following rewritten version:

A sixth invention aspect of the present application invention provides a quantitative measurement method according to the first invention aspect of the present application invention, in which in the detection step, the distance from the contact interface between the test specimen and the structure to the position where the quantitatively increasing or decreasing substance is detected will be measured, after a predetermined period of time has elapsed from the time at which the test specimen first came into contact with the structure in the contacting step.

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Please replace the paragraph beginning at page 11, line 1 with the following rewritten version:

The diffusion speed of the target substance into the structure will increase as the concentration of the target substance increases, so the range in which a substance will be detected whose quantity increases or decreases by means of the reaction between the target substance and the ~~test specimen~~ reagent will become larger. Thus, a target substance can be quantitatively measured by measuring the location at which the quantitatively increasing or decreasing substance is detected after a predetermined period of time has elapsed.

Please replace the paragraph beginning at page 11, line 8 with the following rewritten version:

A seventh invention aspect of the present application invention provides a quantitative measurement method according to the first invention aspect of the present application invention, in which in the detection step, the concentration distribution of the quantitatively increasing or decreasing substance is detected at a distance from the contact interface between the test specimen and the structure by scanning the structure after the contacting step.

Please replace the paragraph beginning at page 11, line 28 with the following rewritten version:

An eighth invention aspect of the present application invention provides a quantitative measurement method according to the first invention aspect of the present

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~~application invention~~, in which in the detection step, the quantitatively increasing or decreasing substance is detected by measuring the light absorbency of the quantitatively increasing or decreasing substance.

Please replace the paragraph beginning at page 11, line 19 with the following rewritten version:

A ninth ~~invention aspect~~ of the present ~~application invention~~ provides a quantitative measurement method according to the first ~~invention aspect~~ of the present ~~application invention~~, further comprising a diffusion promoting step which promotes the diffusion of a target substance into the structure by applying a voltage to a target substance having an electrical charge.

Please replace the paragraph beginning at page 12, line 3 with the following rewritten version:

A tenth ~~invention aspect~~ of the present ~~application invention~~ provides a quantitative measurement chip comprising a reaction cell having a structure which is formed with a three dimensional mesh structure material, the structure containing a reagent that reacts with a target substance in the mesh; a photoreceptor and photoemitter for measuring, at a contact interface between the test specimen and the reagent, the light absorbance of a substance whose quantity increases or decreases within the reaction cell by means of the reaction between the target substance and the reagent; and an injection tube for injecting a test specimen containing the target substance into the reaction cell. The mesh structure allows at least the target substance to pass therethrough.

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Please replace the paragraph beginning at page 13, line 12 with the following rewritten version:

An eleventh invention aspect of the present application invention provides a quantitative measurement chip according to the tenth invention aspect of the present application invention, in which the mesh structure has a size which prevents a test specimen that is larger than the target substance from passing therethrough.

Please replace the paragraph beginning at page 14, line 1 with the following rewritten version:

A twelfth invention aspect of the present application invention provides a quantitative measurement chip according to the tenth invention aspect of the present application invention, in which the planar direction of the photoemission surface of a photoemitter and the planar direction of the photoreception surface of a photoreceptor intersect with the planar direction of the contact interface.

Please replace the paragraph beginning at page 14, line 6 with the following rewritten version:

A thirteenth invention aspect of the present application invention provides a quantitative measurement chip according to the tenth invention aspect of the present application invention, in which the photoemitter and the photoreceptor are respectively formed from a photoemission hole for irradiating light on the structure and a photoreception hole which receives light from the structure.

Please replace the sentence beginning at page 15, line 14 with the following rewritten version:

Fig. 13 shows a biochemical measurement chip disclosed in ~~Non-Patent Document 1~~ a publication titled "2002 International Conference on Solid State Devices and Substances".

Please replace the heading at page 15, line 17, with the following rewritten version:

~~BEST MODE FOR CARRYING OUT THE INVENTION~~ PREFERRED EMBODIMENTS OF THE INVENTION

Please delete line 18 on page 15 (the word "EMBODIMENT")

Please replace the paragraph beginning at page 23, line 18 with the following rewritten version:

Natural polymer gels (agar-agar, agarpectin, starch, amylase, amylopectin, carageenan, geran gum, ~~kitansan~~ xanthan gum, curdlan, gelatin, collagen, alginic acid, pectin, konjak mannan, methyl cellulose, hydroxypropyl cellulose, dextran), synthetic polymer gels (polyethylene, polystyrene, polyacrylate, polyacrylic acid, polymethacrylic acid, polyglutamic acid, polyvinyl pyridine, polyvinyl imidazole, acrylamide, vinyl pyrrolidone, hydroxyethyl methacrylate, o-benzyl-L-glutamate, polyethylene glycol,

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hyaluronic acid), inorganic materials (porous glass beads, silica gel), latex beads, bead shaped polymer gels (Sephadex, Sephacryl, Sepharose, Bio-Gel) and the like.

Please replace the sentence at page 33, line 1, with the following rewritten version:

What Is Claimed Is: Claims